

Amendments to the Claims:

Claims 1-9 had been pending in this application prior to the present Amendment. By action of this Amendment, Claims 1-9 are cancelled, and new Claims 10-17 are added.

This listing of claims will replace all prior versions, and listings, in the application.

Claims 1-9 (Cancelled)

Claim 10. (New) A method of converting heat to electricity using a multi-component working fluid comprising ammonia and water, comprising the steps of:

- a. pressuring said working fluid in liquid form in a feedpump;
- b. heating said working fluid liquid in a recuperator to its boiling point and partially vaporizing it;
- c. further heating said working fluid liquid-vapor mixture in a heater to fully vaporize it and further heating said working fluid to a superheated vapor state, said heater comprising a heat exchanger using a hot gas that supplies heat to said working fluid liquid-vapor mixture and arranged in counter-flow to said working fluid vapor;
- d. reducing the pressure and enthalpy of said superheated working fluid vapor by expansion through a turbine, and using said turbine to generate electricity;

- e. cooling and partially condensing said low-pressure working fluid vapor emerging from said turbine in said recuperator, which is arranged in counter-flow to said high-pressure working fluid liquid from said feedpump, and partially vaporizing said high-pressure working fluid liquid;
- f. further cooling and further condensing said low-pressure working fluid in a cooler, said cooler being a heat exchanger using a second fluid that absorbs heat from the working fluid and arranged in counter-flow to the working fluid;
- g. returning the low-pressure liquid working fluid leaving said cooler to the feedpump to form a closed loop system.

Claim 11 (New) The method as recited in claim 10, wherein:

said low-pressure working fluid leaving said recuperator is cooled in a first cooler to a temperature higher than its fully condensed temperature, such first cooler being a heat exchanger using a second fluid that absorbs heat from the working fluid and arranged in counter-flow to the working fluid; and

said low-pressure working fluid leaving the first cooler is cooled and fully condensed in a second cooler, such second cooler being a heat exchanger using a third fluid that absorbs heat from the working fluid and arranged in counter-flow to the working fluid.

Claim 12. (New) The method as recited in claim 10, wherein:

said partially vaporized high-pressure working fluid from said recuperator is fully vaporized in a pre-heater prior to being introduced to said heater;

said superheated high-pressure working fluid is directed from the heater to the pre-heater to supply vaporization energy and returned to the heater for continued superheating;

said pre-heater arranged with partially vaporized working fluid in counter-flow to the superheated working fluid.

Claim 13. (New) The method as recited in claim 10 wherein the hot gas that supplies heat to said working fluid in said heater is a flue gas produced by combusting biomass.

Claim 14. (New) The method as recited in claim 10 wherein the hot gas that supplies heat to said working fluid in said heater is a flue gas produced as a waste product of an existing industrial process.

Claim 15. (New) An apparatus for converting heat to electricity, comprising:

a multi-component working fluid containing ammonia and water;

a feedpump for pressurizing said multi-component working fluid;

a recuperator for heating and partially vaporizing said high-pressure working fluid leaving the feedpump using heat from cooling and partially condensing low-pressure working fluid leaving a turbine, such recuperator arranged in counter-flow;

a heater for fully vaporizing and superheating said high-pressure working fluid which has been partially vaporized before entering said heater;

a turbine for expanding the superheated working fluid to a low-pressure and extracting useful energy to generate electricity; and

a cooler for cooling and condensing said low-pressure working fluid which has been partially condensed in said recuperator before entering the cooler.

Claim 16. (New) The apparatus as claimed in claim 15 wherein said cooler comprises:

a first cooler heat exchanger to extract heat from said low-pressure working fluid which has been partially condensed in said recuperator to heat a second fluid; and

a second cooler heat exchanger for further extracting heat from said low-pressure working fluid which has been partially condensed in said recuperator and said first cooler unit to heat to a third fluid.

Claim 17. (New) The apparatus as claimed in claim 15 further comprising a pre-heater to fully vaporize said high-pressure working fluid leaving the recuperator in partially vaporized state by using superheated high-pressure working fluid directed from the heater and arranged in counter-flow, and returning said superheated high-pressure working fluid to the heater for continued superheating.